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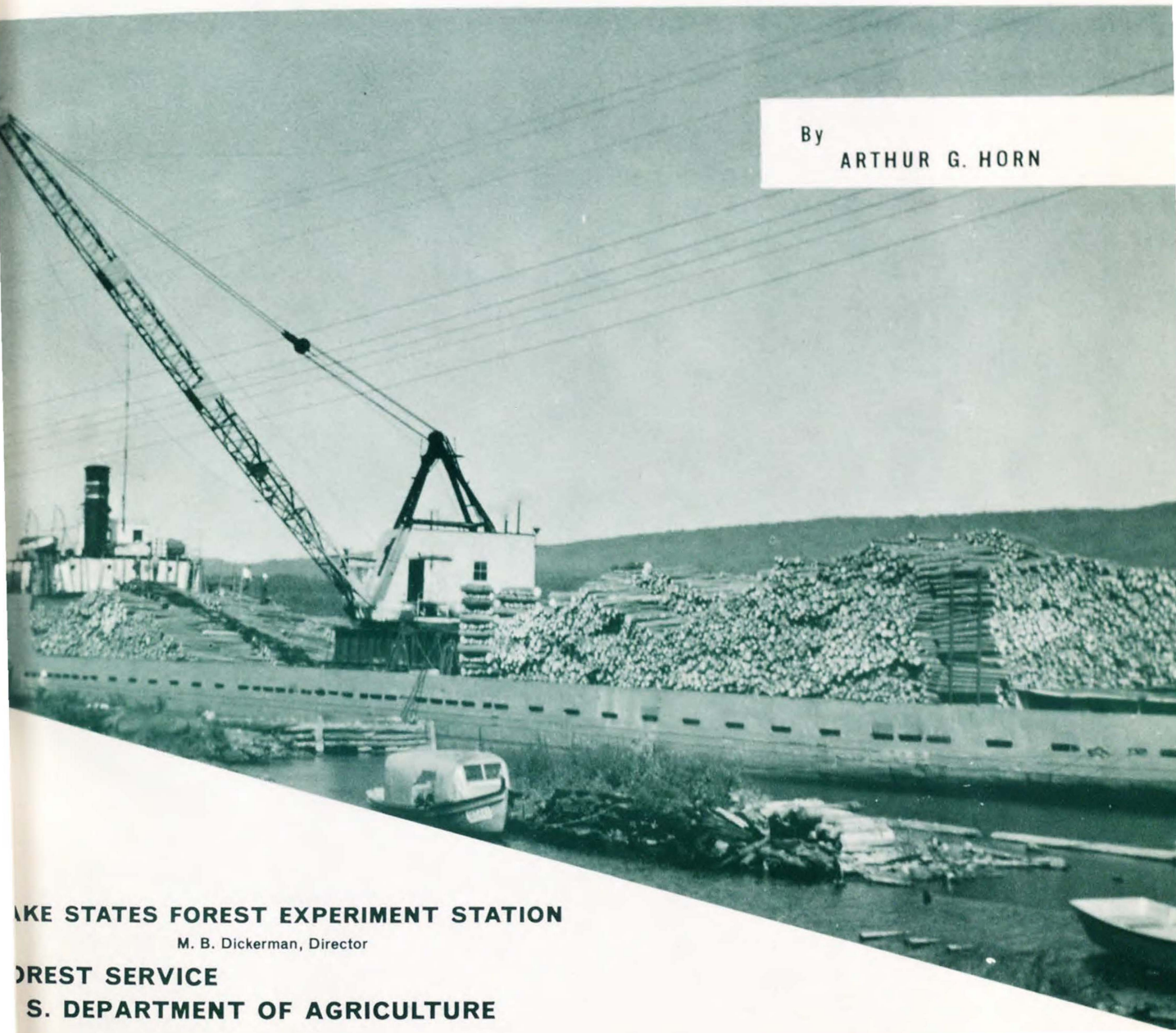
Pulpwood Production in Lake States Counties, 1960



By
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PULPWOOD PRODUCTION IN LAKE STATES COUNTIES, 1960

by Arthur G. Horn[1/]

ABOUT THIS REPORT

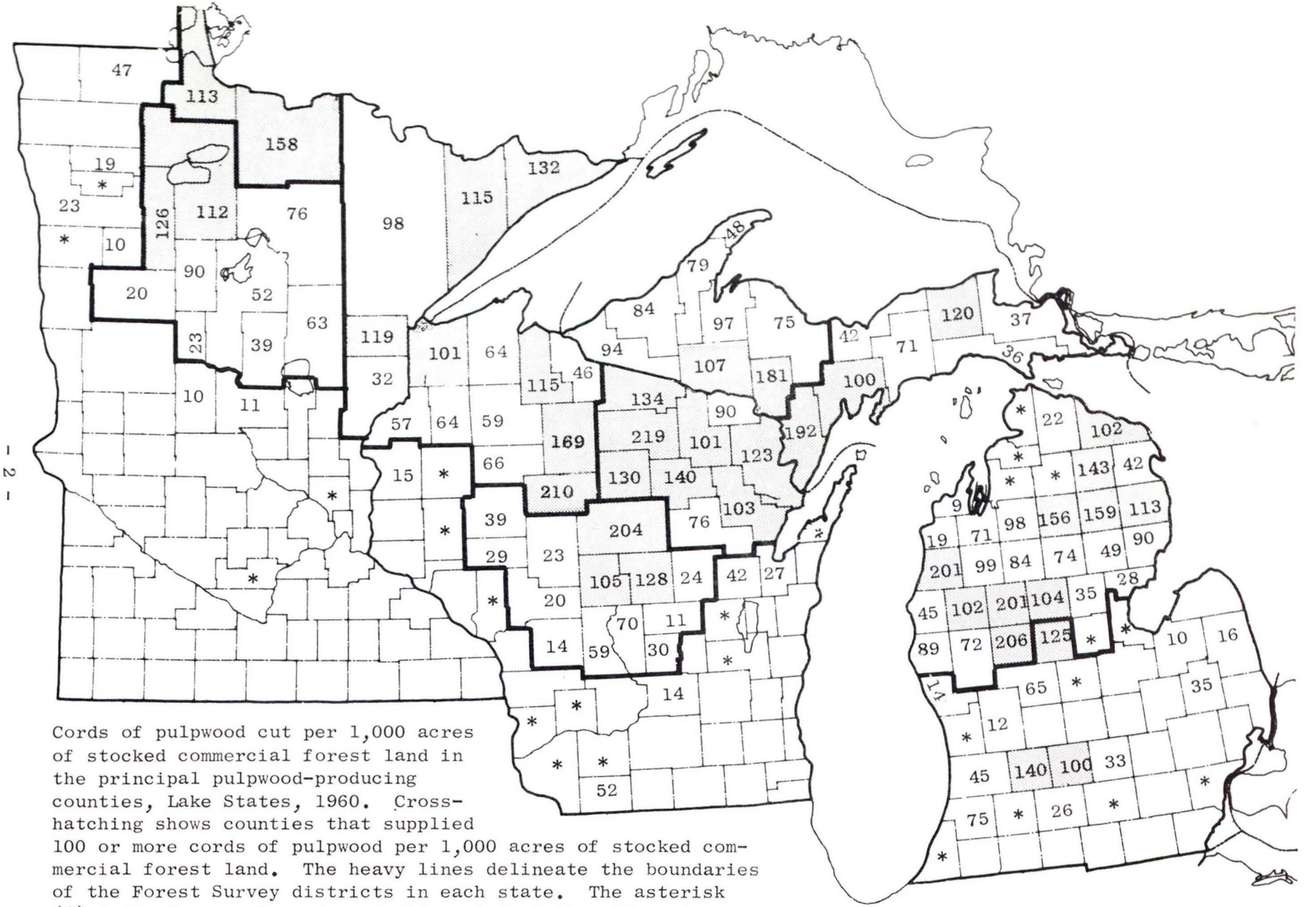
Timber cutting rates vary from year to year. Frequent measurement is required to maintain a current, useful picture of the balances between timber cut, timber growth, and desirable cut. To partially meet this need the Station publishes summaries of the output of various timber products as often as reliable data can be acquired. Reports of pulpwood output by States have been published each year since 1946.

This is the second report on pulpwood cut by counties in the Lake States region (see maps following this page). All of the 59 mills using Lake States timber in 1960 furnished figures on their wood receipts by State and county of origin. The help of the many pulp and paper mill officials who took part in this canvass is gratefully acknowledged. Thanks are also due to Ray Pfeifer, Forest Survey Coordinator, Michigan Department of Conservation, for collecting data for the Michigan pulpmills.

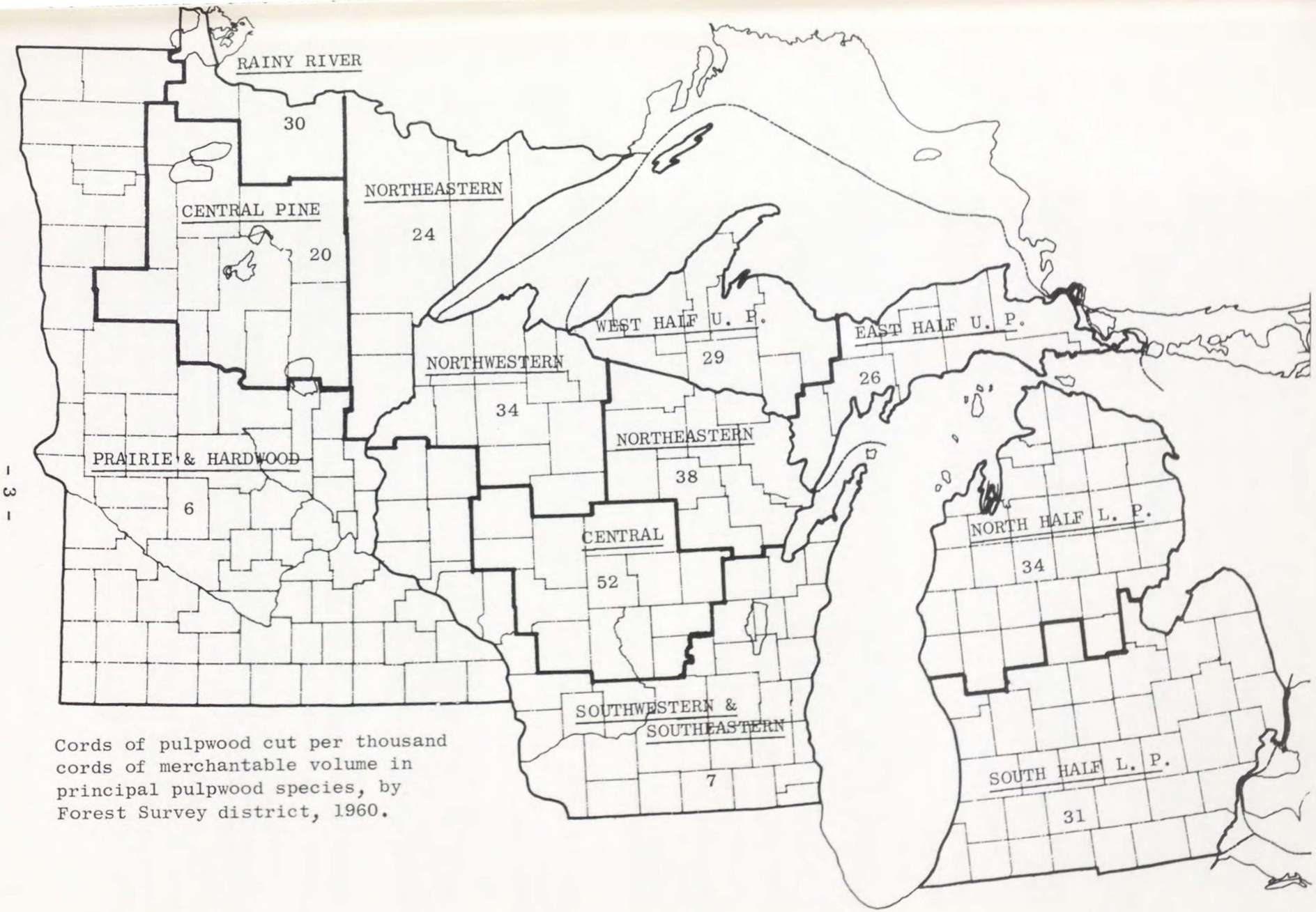
The volume of timber cut annually varies by areas within States. Although many products are difficult to trace to county of origin, pulpwood origin can be traced with good accuracy. Knowing the production of pulpwood, which is a major Lake States product, makes it possible to estimate the production of all products and the resulting timber cut by counties and county groups.

The last section in this report presents, for each Forest Survey district, estimates of the timber cut for all products from the six principal pulpwood species. The tables are followed by charts comparing this estimate with the most recent previous estimate of timber cut. While not as reliable as the pulpwood production figures, which came from a 100-percent canvass, the total timber cut estimates give an indication of the trend of cutting in these important species.

1/ Research Forester, Lake States Forest Experiment Station, Forest Service, U. S. Department of Agriculture. The Station is maintained at St. Paul 1, Minn., in cooperation with the University of Minnesota.



Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in the principal pulpwood-producing counties, Lake States, 1960. Cross-hatching shows counties that supplied 100 or more cords of pulpwood per 1,000 acres of stocked commercial forest land. The heavy lines delineate the boundaries of the Forest Survey districts in each state. The asterisk (*) indicates a pulpwood production of less than 10 cords per 1,000 acres.



Cords of pulpwood cut per thousand cords of merchantable volume in principal pulpwood species, by Forest Survey district, 1960.

1960 PULPWOOD BRIEFS

Lake States Pulpwood Continues to Climb, Establishing a Record Cut of 3,337,000 Cords.--This represents an increase of 11 percent over 1959, the previous high, when 3,019,000 cords were harvested.

Pulpwood logs and bolts accounted for 99 percent of the total chips from slabwood, and other mill residue made up the remaining 1 percent.

Minnesota Dropped to Third Place in the Regional Standing With 1,048,000 Cords.--Although Minnesota pulpwood cut was up 5 percent over the previous year, it fell short of the increases posted in Michigan and Wisconsin. During the past 5 years shipments of pulpwood from Minnesota to Wisconsin and Michigan have dipped, although shipments to Canadian mills have taken up some of the slack.

In the Northeastern District 502,000 cords of pulpwood were produced, more than in any other of the State's districts; 48 percent went to Minnesota mills and 52 percent to Wisconsin and Canada. Aspen, spruce, and pine were the species most heavily cut. Larger cuts of all pulpwood species in this district are desirable.

The Central Pine District produced 325,000 cords in 1960. Of the total, 21 percent was shipped to Wisconsin. Aspen, pine, and balsam were the species most heavily cut. Larger cuts of aspen and balsam are desirable.

The Rainy River District reported production of 203,000 cords, nearly all of it going to Minnesota mills. Aspen, spruce, and balsam were the species most heavily cut. A small increase in the cut of aspen, spruce, and tamarack is desirable.

The Prairie and Hardwood Districts together reported a cut of 18,000 cords. Many counties in this area have a high potential as a source of aspen and miscellaneous dense hardwoods for pulpwood.

Wisconsin Claims Second Place in the Regional Standing With 1,052,000 Cords.-- As in previous years, nearly all the pulpwood cut from Wisconsin timber was channeled to Wisconsin mills. Larger cuts of local pulpwood have reduced the proportion of wood obtained from other States and Canada. In 1950, Wisconsin forests supplied only about 30 percent of the pulpwood used by local mills; 5 years later they supplied 40 percent, and in 1960 nearly 50 percent.

The Northeastern District was Wisconsin's top pulpwood-producing area in 1960; 466,000 cords were produced. In recent years this district has been supplying a steadily increasing proportion of the State's pulpwood output. Aspen, miscellaneous dense hardwoods, and jack pine were the species most heavily cut. Still larger cuts of low-grade hardwoods are recommended, but softwood cutting generally exceeds recommended levels.

The Northwestern District, with 416,000 cords, was second in production. A larger proportion of the State's pulpwood output was harvested from this district in 1960 than at any time during the past 5 years. Species distribution was similar to that in the Northeastern District, and here also the stands could benefit from increased cutting of aspen and other hardwoods.

In the Central District, production was down from 189,000 cords in 1959 to 155,000 cords in 1960. Several years ago this district produced about one-fourth of the State's pulpwood cut compared with 15 percent in 1960. A change in the wood procurement patterns of local mills has helped to reduce the overcutting, especially of aspen, which was prevalent several years ago, but dense hardwoods are the only species in surplus supply.

In the Southwestern and Southeastern Districts, the pulpwood harvest increased. Prior to 1960 the average annual cut amounted to approximately 5,000 cords; in 1960 it was 15,000 cords. Present output is largely miscellaneous hardwoods, jack pine, and aspen.

Michigan Was Again the Region's Top Pulpwood-Producing State With 1,237,000 Cords.--Rising local demand, coupled with a hike in pulpwood exports to Wisconsin, resulted in a 17-percent increase over 1959. The share of Michigan-grown pulpwood going to Michigan mills has risen in recent years from 45 percent to 59 percent.

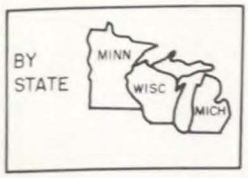
The east half of Upper Michigan had a total cut of 299,000 cords in 1960. Menominee, Delta, and Luce were the leading pulpwood-producing counties. The pulpwood cut in this area has increased in recent years, but the proportion it represents of total State output remains the same--24 percent. Aspen, balsam, and pine were the species most heavily cut. Larger annual cuts of all species (except jack pine) are desirable.

The west half of Upper Michigan produced 392,000 cords. Marquette, Dickinson, and Iron counties were the leaders.

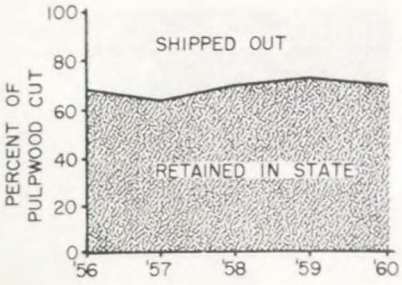
The north half of Lower Michigan,with an output of 503,000 cords, was the No. 1 pulpwood-producing district. Oscoda, Crawford, and Manistee counties were the top producers. Currently aspen, jack pine, and miscellaneous dense hardwoods make up most of the cut. Larger cuts of aspen and low-grade hardwoods are desirable, but the present jack pine cut exceeds the desirable cut calculated in the latest Forest Survey.

The south half of Lower Michigan reported a cut of 43,000 cords in 1960, up from 32,000 cords in 1959.

LAKE STATES PULPWOOD PRODUCTION

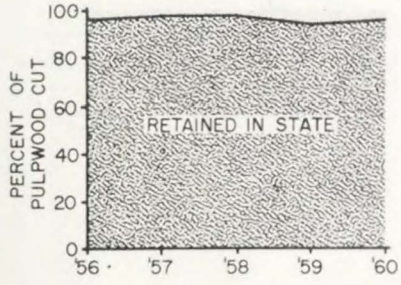


Charts show the pulpwood output retained in the State separately from that shipped out as a percentage of the pulpwood cut.



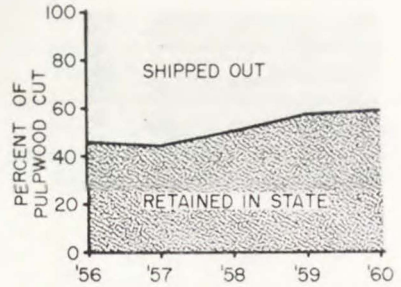
MINNESOTA

Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1956	1,067	729	331	7	-
1957	1,049	672	368	9	-
1958	903	626	267	7	3
1959	994	721	251	7	15
1960	1,048	711	308	-	29
Five-year average	1,012	692	305	6	9



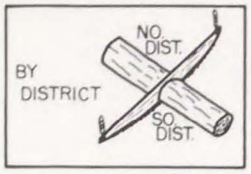
WISCONSIN

Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1956	960	20	934	-	6
1957	934	17	911	-	6
1958	828	14	811	-	3
1959	972	21	915	3	33
1960	1,052	19	1,008	-	25
Five-year average	949	18	915	1	15

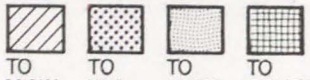


MICHIGAN

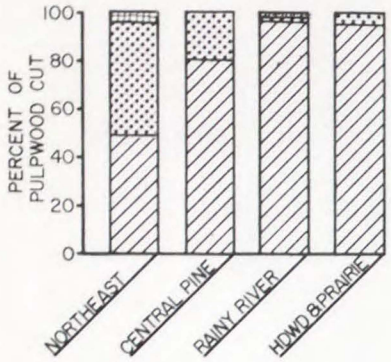
Year	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1956	966	-	528	438	-
1957	980	-	553	427	-
1958	900	-	442	458	-
1959	1,053	-	447	603	3
1960	1,237	-	510	727	-
Five-year average	1,027	-	496	530	1



Charts show the destination of the pulpwood harvest as a percentage of the total pulpwood cut, 1960. Legend is as follows:

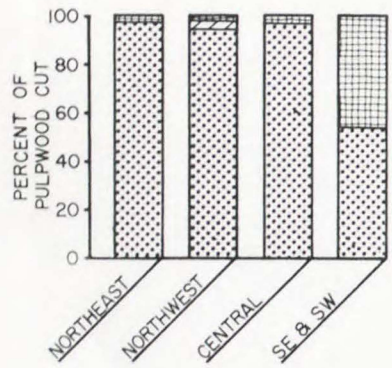


MINNESOTA



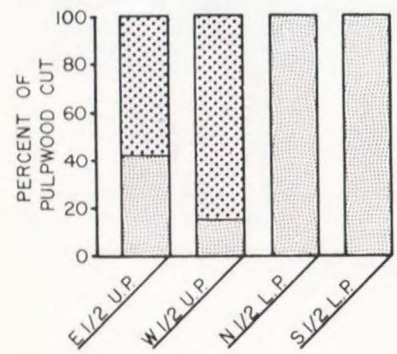
District	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
Northeastern	502	242	236	-	24
Central Pine	325	258	67	-	-
Rainy River	203	194	4	-	5
Hardwood & Prairie	18	17	1	-	-
Total	1,048	711	308	-	29

WISCONSIN



District	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
Northeastern	466	-	457	-	9
Northwestern	416	19	392	-	5
Central	155	-	151	-	4
Southeastern & Southwestern	15	-	8	-	7
Total	1,052	19	1,008	-	25

MICHIGAN



District	Total cut	Destination of pulpwood			
		Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
E.½ Up. Pen.	299	-	176	123	-
W.½ Up. Pen.	392	-	334	58	-
N.½ Low.Pen.	503	-	-	503	-
S.½ Low.Pen.	43	-	-	43	-
Total	1,237	-	510	727	-

Table 1.--Pulpwood production by species and district for specified years

(Thousand standard cords, roughwood basis)

Species & district	Annual cut, M cords			Percent of state total		
	1952[1/]	1959	1960	1952[1/]	1959	1960
ASPEN:						
Northeastern	105	119	150	39	31	38
Central Pine	107	169	158	40	45	40
Rainy River	52	86	77	19	22	20
Hardwood	3	*	*	1	*	*
Prairie	3	7	7	1	2	2
Total	270	381	392	100	100	100
BALSAM FIR:						
Northeastern	52	59	62	32	45	42
Central Pine	62	40	49	38	31	34
Rainy River	41	30	33	25	23	23
Hardwood	2	1	1	1	1	1
Prairie	6	*	*	4	*	*
Total	163	130	145	100	100	100
BIRCH:						
Northeastern	2	1	*	100	100	*
Central Pine	-	*	1	-	-	100
Rainy River	-	-	-	-	-	-
Hardwood	-	-	-	-	-	-
Prairie	-	-	-	-	-	-
Total	2	1	1	100	100	100
PINE:						
Northeastern	98	102	138	51	43	61
Central Pine	78	121	64	40	51	28
Rainy River	8	8	13	4	3	6
Hardwood	8	*	2	4	*	1
Prairie	2	8	8	1	3	4
Total	194	239	225	100	100	100
SPRUCE:						
Northeastern	115	108	146	39	49	57
Central Pine	47	45	42	16	21	17
Rainy River	119	65	67	41	30	26
Hardwood	3	1	*	1	*	*
Prairie	9	1	1	3	*	*
Total	293	220	256	100	100	100

(Table 1 for Minnesota cont'd)

Species & district	Annual cut, M cords			Percent of state total		
	1952[1/]	1959	1960	1952[1/]	1959	1960
TAMARACK:						
Northeastern	3	2	5	23	18	26
Central Pine	3	6	11	23	55	58
Rainy River	6	3	3	46	27	16
Hardwood	1	-	-	8	-	-
Prairie	-	-	-	-	-	-
Total	13	11	19	100	100	100
MISC. HARDWOODS:						
Northeastern	-	1	1	-	8	10
Central Pine	-	-	*	-	-	-
Rainy River	2	11	9	100	92	90
Hardwood	-	-	-	-	-	-
Prairie	-	-	-	-	-	-
Total	2	12	10	100	100	100
RESIDUE & CHIPS:						
Northeastern	-	-	-	-	-	-
Central Pine	-	-	-	-	-	-
Rainy River	-	-	-	-	-	-
Hardwood	-	-	-	-	-	-
Prairie	-	-	-	-	-	-
Total	-	-	-	-	-	-
ALL SPECIES:						
Northeastern	375	392	502	40	40	48
Central Pine	297	381	325	32	38	31
Rainy River	228	203	202	24	20	19
Hardwood	17	2	3	2	*	*
Prairie	20	16	16	2	2	2
State total	937	994	1,048	100	100	100

1/ Not available for years 1953 through 1958.
* Less than 500 cords or less than 1/2 of 1 percent.

WISCONSIN

Table 2.--Pulpwood production by species and district for specified years

(Thousand standard cords, roughwood basis)

Species & district	Annual cut, M cords			Percent of state total		
	1956[1]	1959	1960	1956[1]	1959	1960
ASPEN:						
Northeastern	243	206	281	48	48	52
Northwestern	171	172	212	34	40	39
Central	92	51	45	18	12	9
Southwestern	-	1	*	-	*	*
Southeastern	1	1	2	*	*	*
Total	507	431	540	100	100	100
BALSAM FIR:						
Northeastern	29	31	25	65	60	50
Northwestern	14	20	24	31	38	48
Central	2	1	1	4	2	2
Southwestern	-	-	-	-	-	-
Southeastern	-	*	-	-	*	-
Total	45	52	50	100	100	100
BIRCH:						
Northeastern	9	4	4	43	15	15
Northwestern	11	22	19	52	85	70
Central	1	*	4	5	*	15
Southwestern	*	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Total	21	26	27	100	100	100
HEMLOCK:						
Northeastern	14	18	17	25	37	33
Northwestern	35	26	27	63	53	52
Central	7	5	8	12	10	15
Southwestern	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Total	56	49	52	100	100	100
PINE:						
Northeastern	26	47	38	18	25	31
Northwestern	39	56	53	28	30	43
Central	75	84	29	54	45	23
Southwestern	-	-	3	-	-	2
Southeastern	-	-	1	-	-	1
Total	140	187	124	100	100	100
SPRUCE:						
Northeastern	17	13	11	74	62	61
Northwestern	5	7	6	22	33	33
Central	1	1	1	4	5	6
Southwestern	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Total	23	21	18	100	100	100

(Table 2 for Wisconsin cont'd)

Species & district	Annual cut, M cords			Percent of state total		
	1956[1/]	1959	1960	1956[1/]	1959	1960
TAMARACK:						
Northeastern	2	4	4	50	57	66
Northwestern	2	3	2	50	43	34
Central	*	-	*	*	-	-
Southwestern	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Total	4	7	6	100	100	100
MISC. HARDWOODS:						
Northeastern	61	53	73	37	33	36
Northwestern	49	58	63	30	36	31
Central	49	47	61	30	30	30
Southwestern	2	-	6	1	-	3
Southeastern	3	1	1	2	1	*
Total	164	159	204	100	100	100
RESIDUE & CHIPS:[2/]						
Northeastern	-	18	13	-	45	42
Northwestern	-	13	10	-	33	32
Central	-	7	6	-	17	19
Southwestern	-	2	2	-	5	7
Southeastern	-	*	*	-	-	-
Total	(3/)	40	31	(3/)	100	100
ALL SPECIES:						
Northeastern	402	394	466	42	41	44
Northwestern	325	377	416	34	39	40
Central	227	196	155	24	20	15
Southwestern	2	3	11	*	*	1
Southeastern	4	2	4	*	*	*
State total	960	972	1,052	100	100	100

1/ Not available for years 1957 and 1958.
2/ Not reported by district; prorated on basis of 1956 lumber output.
3/ Negligible.
* Less than 500 cords or less than 1/2 of 1 percent.

MICHIGAN

Table 3.--Pulpwood production by species and district for specified years

(Thousand standard cords, roughwood basis)

Species & district	Annual cut, M cords			Percent of state total		
	1954 [1]	1959	1960	1954 [1]	1959	1960
ASPEN:						
E.½ Up. Pen.	76	94	111	19	18	17
W.½ Up. Pen.	145	142	173	36	27	26
N.½ Low.Pen.	167	263	355	41	50	53
S.½ Low.Pen.	16	24	30	4	5	4
Total	404	523	669	100	100	100
BALSAM FIR:						
E.½ Up. Pen.	54	57	73	39	52	54
W.½ Up. Pen.	81	45	55	59	41	41
N.½ Low.Pen.	2	7	7	2	7	5
S.½ Low.Pen.	-	-	-	-	-	-
Total	137	109	135	100	100	100
BIRCH:						
E.½ Up. Pen.	3	3	3	60	75	33
W.½ Up. Pen.	2	1	2	40	25	22
N.½ Low.Pen.	-	-	4	-	-	45
S.½ Low.Pen.	-	-	-	-	-	-
Total	5	4	9	100	100	100
HEMLOCK:						
E.½ Up. Pen.	5	*	3	8	*	7
W.½ Up. Pen.	57	39	43	92	100	93
N.½ Low.Pen.	-	-	-	-	-	-
S.½ Low.Pen.	-	-	-	-	-	-
Total	62	39	46	100	100	100
PINE:						
E.½ Up. Pen.	6	59	51	14	30	27
W.½ Up. Pen.	1	33	22	2	17	12
N.½ Low.Pen.	36	104	114	84	53	61
S.½ Low.Pen.	*	1	1	*	*	*
Total	43	197	188	100	100	100
SPRUCE:						
E.½ Up. Pen.	46	37	52	39	45	48
W.½ Up. Pen.	71	39	49	59	47	45
N.½ Low.Pen.	2	7	7	2	8	7
S.½ Low.Pen.	-	-	-	-	-	-
Total	119	83	108	100	100	100

(Table 3 for Michigan cont'd)

Species & district	Annual cut, M cords			Percent of state total		
	1954 1/	1959	1960	1954 1/	1959	1960
TAMARACK:						
E.½ Up. Pen.	*	*	2	-	-	40
W.½ Up. Pen.	1	3	3	100	100	60
N.½ Low.Pen.	-	-	-	-	-	-
S.½ Low.Pen.	-	-	-	-	-	-
Total	1	3	5	100	100	100
MISC. HARDWOODS:						
E.½ Up. Pen.	1	4	4	4	4	5
W.½ Up. Pen.	2	51	43	8	57	58
N.½ Low.Pen.	12	28	16	46	31	21
S.½ Low.Pen.	11	7	12	42	8	16
Total	26	90	75	100	100	100
RESIDUE & CHIPS:						
E.½ Up. Pen.	-	-	-	-	-	-
W.½ Up. Pen.	-	5	2	-	100	100
N.½ Low.Pen.	-	-	-	-	-	-
S.½ Low.Pen.	-	-	-	-	-	-
Total	(2/)	5	2	-	100	100
ALL SPECIES:						
E.½ Up. Pen.	191	254	299	24	24	24
W.½ Up. Pen.	360	358	392	45	34	32
N.½ Low.Pen.	219	409	503	27	39	41
S.½ Low.Pen.	27	32	43	4	3	3
State total	797	1,053	1,237	100	100	100

1/ Not available for years 1955 through 1958.
2/ Negligible.
* Less than 500 cords or less than 1/2 of 1 percent.

MINNESOTA

Table 4.--Pulpwood production by county and species, 1960

(Thousand standard cords, roughwood basis)

District & county 1/	All species	Aspen	Balsam	Birch	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips
NORTHEASTERN:									
Carlton	29	24	2	-	2	1	-	-	-
Cook	83	-	18	-	16	49	-	-	-
Lake	113	7	6	-	59	40	1	-	-
Pine	12	9	1	-	2	*	*	-	-
St. Louis	265	110	35	*	59	56	4	1	-
Total	502	150	62	*	138	146	5	1	-
CENTRAL PINE:									
Aitkin	34	26	3	-	1	3	1	-	-
Becker	6	3	1	-	1	1	-	-	-
Beltrami	80	36	15	*	12	13	4	*	-
Cass	37	17	2	1	13	3	1	-	-
Clearwater	33	26	2	*	2	2	1	-	-
Crow Wing	12	2	1	-	8	1	-	-	-
Hubbard	32	19	2	*	8	2	1	-	-
Itasca	89	29	23	-	17	17	3	*	-
Wadena	2	*	-	-	2	-	*	-	-
Total	325	158	49	1	64	42	11	*	-
RAINY RIVER:									
Koochiching	169	65	31	-	7	54	3	9	-
Lake of the Woods	33	12	2	-	6	13	-	*	-
Total	202	77	33	-	13	67	3	9	-
HARDWOOD:									
Anoka	*	*	-	-	-	-	-	-	-
Benton	*	*	-	-	-	-	-	-	-
Morrison	2	-	1	-	1	*	-	-	-
Otter Tail	*	*	-	-	-	-	-	-	-
Todd	1	*	-	-	1	-	-	-	-
Total	3	*	1	-	2	*	-	-	-
PRAIRIE:									
Mahnomen	1	1	*	-	-	-	-	-	-
Marshall	*	*	-	-	-	*	-	-	-
Norman	*	*	-	-	-	-	-	-	-
Pennington	1	1	-	-	-	-	-	-	-
Polk	2	2	-	-	-	*	-	-	-
Red Lake	*	*	-	-	-	-	-	-	-
Roseau	12	3	*	-	8	1	-	-	-
Sibley	*	*	-	-	-	-	-	-	-
Total	16	7	*	-	8	1	-	-	-
State total	1,048	392	145	1	225	256	19	10	-

1/ Includes only those counties that supplied pulpwood in 1960.

* Less than 500 cords.

WISCONSIN

Table 5.--Pulpwood production by county and species, 1960

(Thousand standard cords, roughwood basis)

District & county 1/	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips 2/
NORTHEASTERN:										
Florence	22	13	2	-	3	3	1	*	*	-
Forest	51	38	5	-	3	1	2	*	2	-
Langlade	48	26	1	*	1	*	1	1	18	-
Lincoln	42	26	3	1	1	1	1	1	8	-
Marinette	66	36	4	-	1	14	2	-	9	-
Oconto	38	22	1	-	2	2	*	-	11	-
Oneida	105	65	5	1	3	13	3	1	14	-
Shawano	27	22	1	*	1	*	*	-	3	-
Vilas	54	33	3	2	2	4	1	1	8	-
Total	466	281	25	4	17	38	11	4	73	13
NORTHWESTERN:										
Ashland	56	29	9	2	5	1	2	1	7	-
Bayfield	47	28	3	1	7	7	*	-	1	-
Burnett	16	5	*	*	-	10	*	1	-	-
Douglas	51	29	1	*	-	19	1	*	1	-
Iron	17	7	3	1	4	*	1	*	1	-
Price	81	38	5	8	5	-	1	*	24	-
Rusk	20	15	*	*	1	*	*	-	4	-
Sawyer	34	20	2	5	3	2	1	-	1	-
Taylor	63	34	1	2	2	*	*	*	24	-
Washburn	21	7	*	-	*	14	*	*	*	-
Total	416	212	24	19	27	53	6	2	63	10
CENTRAL:										
Adams	14	2	-	-	-	6	*	-	6	-
Chippewa	8	7	-	*	*	*	-	-	1	-
Clark	6	5	*	*	*	*	-	-	1	-
Eau Claire	4	2	-	-	-	2	-	-	*	-
Jackson	6	2	-	*	-	3	*	-	1	-
Juneau	13	2	-	-	-	9	-	-	2	-
Marathon	59	17	1	3	7	1	1	*	29	-
Marquette	2	*	-	*	-	*	-	-	2	-
Monroe	3	*	-	-	-	3	*	*	*	-
Portage	15	3	*	*	1	2	*	-	9	-
Waupaca	3	2	*	1	*	*	*	-	*	-
Waushara	1	*	-	*	-	*	-	-	1	-
Wood	15	3	*	*	*	3	*	-	9	-
Total	155	45	1	4	8	29	1	*	61	6

(Table 5 for Wisconsin cont'd)

District & county 1/	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips 2/
SOUTHWESTERN:										
Barron	*	-	-	-	-	*	-	-	-	-
Crawford	2	-	-	-	-	-	-	-	2	-
Dunn	*	*	-	-	-	*	-	-	-	-
Grant	2	-	-	-	-	-	-	-	2	-
Iowa	1	-	-	-	-	*	-	-	1	-
LaFayette	1	-	-	-	-	-	-	-	1	-
Polk	3	*	-	-	-	3	-	-	-	-
Richland	*	-	-	-	-	*	-	-	-	-
Trempealeau	*	-	-	-	-	*	-	-	-	-
Total	11	*	-	-	-	3	-	-	6	2
SOUTHEASTERN:										
Brown	1	*	-	-	-	-	*	-	1	-
Calumet	*	*	-	-	-	-	-	-	*	-
Columbia	1	-	-	-	-	1	-	-	*	-
Door	*	*	*	-	-	-	*	-	*	-
Fond du Lac	*	*	-	-	-	-	-	-	-	-
Green Lake	*	*	-	-	-	-	-	-	-	-
Kewaunee	*	-	*	-	-	-	*	-	-	-
Outagamie	2	2	*	-	-	-	*	-	-	-
Total	4	2	*	-	-	1	*	-	1	*
State total	1,052	540	50	27	52	124	18	6	204	31

1/ Includes only those counties that supplied pulpwood in 1960.
2/ County figures are not available.
* Less than 500 cords.

Table 6.--Pulpwood production by county and species, 1960

(Thousand standard cords, roughwood basis)

District & county [1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips [2]
E.½ UP. PEN.										
Alger	20	*	9	-	*	4	7	-	-	-
Chippewa	26	4	7	-	-	8	6	1	-	-
Delta	57	26	15	1	1	5	6	1	2	-
Luce	53	8	8	-	2	22	13	*	-	-
Mackinac	19	6	8	*	-	2	3	*	-	-
Menominee	88	61	13	2	*	1	10	-	1	-
Schoolcraft	36	6	13	-	*	9	7	*	1	-
Total	299	111	73	3	3	51	52	2	4	-
W.½ UP. PEN.										
Baraga	46	17	9	*	2	1	10	-	7	-
Dickinson	67	41	10	1	1	2	9	1	2	
Gogebic	48	20	3	*	16	-	1	-	8	-
Houghton	39	11	7	*	12	*	4	*	5	-
Iron	62	41	8	*	3	1	7	1	1	-
Keweenaw	9	*	5	-	-	-	4	-	-	-
Marquette	68	23	11	1	1	17	13	1	1	-
Ontonagon	51	20	2	*	8	1	1	-	19	-
Total	392	173	55	2	43	22	49	3	43	2
N.½ LOW. PEN.										
Alcona	35	27	1	2	-	2	1	-	2	-
Alpena	9	6	1	*	-	*	1	-	1	-
Antrim	*	*	-	-	-	*	-	-	-	-
Arenac	2	2	-	*	-	*	-	-	*	-
Benzie	2	2	-	-	-	*	-	-	-	-
Cheboygan	7	4	1	*	-	1	1	-	*	-
Clare	18	18	-	-	-	*	-	-	*	-
Crawford	42	14	*	*	-	28	*	-	*	-
Emmet	*	*	-	*	-	-	-	-	*	-
Gladwin	5	5	-	-	-	*	-	-	-	-
Grand Traverse	8	8	-	-	-	*	-	-	*	-
Iosco	19	9	1	1	-	7	1	-	*	-
Kalkaska	19	10	*	-	-	6	*	-	3	-
Lake	29	20	-	-	-	9	-	-	-	-
Leelanau	1	1	-	-	-	*	-	-	-	-
Manistee	42	38	-	-	-	1	-	-	3	-
Mason	7	6	-	-	-	1	-	-	*	-
Mecosta	21	21	-	-	-	-	-	-	*	-
Midland	*	*	-	-	-	-	-	-	-	-
Missaukee	15	13	*	-	-	2	*	-	*	-
Montmorency	36	24	1	*	-	8	*	-	3	-
Newaygo	19	18	-	-	-	1	-	-	*	-
Oceana	11	11	-	-	-	*	-	-	-	-
Ogemaw	12	8	*	*	-	4	*	-	*	-
Osceola	30	27	-	-	-	1	-	-	2	-
Oscoda	45	13	*	-	-	31	1	-	*	-
Otsego	1	1	*	-	-	*	*	-	*	-
Presque Isle	29	19	2	1	-	3	2	-	2	-
Roscommon	19	13	-	*	-	6	-	-	*	-
Wexford	20	17	-	-	-	3	-	-	*	-
Total	503	355	7	4	-	114	7	-	16	-

(Table 6 for Michigan cont'd)

District & county 1/	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips 2/
S.½ LOW. PEN.										
Allegan	5	1	-	-	-	-	-	-	4	-
Barry	6	3	-	-	-	-	-	-	3	-
Bay	*	*	-	-	-	-	-	-	-	-
Berrien	*	*	-	-	-	-	-	-	-	-
Calhoun	1	1	-	-	-	-	-	-	-	-
Eaton	3	2	-	-	-	-	-	-	1	-
Gratiot	*	*	-	-	-	-	-	-	-	-
Ingham	1	1	-	-	-	-	-	-	*	-
Isabella	9	9	-	-	-	-	-	-	-	-
Jackson	*	*	-	-	-	-	-	-	-	-
Kalamazoo	*	*	-	-	-	-	-	-	*	-
Kent	1	1	-	-	-	-	-	-	-	-
Lapeer	3	2	-	*	-	-	-	-	1	-
Montcalm	6	6	-	-	-	-	-	-	*	-
Muskegon	2	1	-	-	-	1	-	-	-	-
Ottawa	*	*	-	-	-	*	-	-	-	-
Saginaw	*	*	-	-	-	-	-	-	-	-
St. Clair	*	*	-	-	-	-	-	-	-	-
Sanilac	1	1	-	*	-	-	-	-	-	-
Tuscola	1	1	-	*	-	-	-	-	-	-
Van Buren	4	1	-	-	-	-	-	-	3	-
Wayne	*	-	-	-	-	-	-	-	*	-
Total	43	30	-	-	-	1	-	-	12	-
State total	1,237	669	135	9	46	188	108	5	75	2

1/ Includes only those counties that supplied pulpwood in 1960.
2/ Residue and chips were used for pulpwood only in the western half of the Upper Peninsula. Data by counties for this area are not available.
* Less than 500 cords.

TOTAL TIMBER CUT ESTIMATES FOR PRINCIPAL PULPWOOD SPECIES, 1960

The tables and charts on pages 23 through 27, unlike the preceding sections of this report, do not show pulpwood production. They show estimates of another Forest Survey statistic--timber cut,--which is essentially the growing stock removed from the forest in logging for all products including pulpwood. The estimates are based largely on reported production of pulpwood, the major component of the timber harvest in these species, and to a lesser extent on current trends in the harvest of other products.

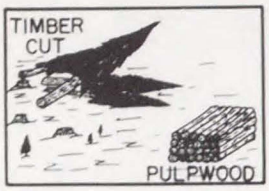
Accuracy of 1960 timber cut estimates varies by species. For spruce and balsam fir they are very reliable because pulpwood, for which there are current production figures, constitutes 95 percent of the harvest of these species. Good confidence can be placed on estimates for aspen, jack pine, and tamarack, in each of which pulpwood represents at least 70 percent of the cut. Hemlock estimates are less reliable because only 45 percent of the hemlock cut is used for pulpwood.

Timber cut estimates are shown in standard cords in the tables. These are followed by charts showing percentages of the most recent previous estimate. Previous estimates were made for Minnesota in 1953, Michigan in 1954, and Wisconsin in 1956.

From the first chart it is apparent that the total cut in these pulpwood species has increased markedly in Michigan except in the western Upper Peninsula, but has remained static or declined in most other parts of the Lake States. The Michigan increases are primarily in the Lower Peninsula where pulpwood demand has risen rapidly in the last decade. In other areas such as northern Wisconsin, pulpwood cutting has gone up but the increase has been balanced by a decrease in production of lumber and other products from these species.

The greatest increases percentagewise were made in jack pine, particularly in Michigan. Although the percentage increases in the Upper Peninsula are very great, it must be remembered that only a little jack pine was cut in Michigan in 1954. Wisconsin, too, shows increased jack pine cutting in the northern districts, but a large decrease in the cut of jack pine and most other species in the central district, which has had heavy cutting pressure in recent years.

The greatest usefulness of these timber cut estimates would be to compare them with estimates of desirable cut, species by species and district by district. Desirable cut estimates are obsolete in many parts of the area, but new ones will be available in Minnesota soon as a result of the current Forest Survey.



Tables show approximate 1960 timber cut [1/] for each of the principal pulpwood species by forest survey districts.

MINNESOTA

Species	State total	Forest survey district				
		North-eastern	Central Pine	Rainy River	Hardwood	Prairie
	(Thousand standard cords)					
Aspen	525	180	215	85	15	30
Balsam fir	145	60	50	35	*	*
Hemlock	-	-	-	-	-	-
Jack pine	285	150	105	15	5	10
Spruce	245	140	40	65	*	*
Tamarack	30	10	15	5	*	*
Total	1,230	540	425	205	20	40

WISCONSIN

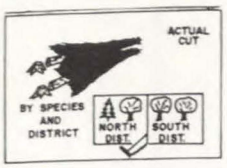
Species	State total	Forest survey district				
		North-eastern	North-western	Central	South-western	South-eastern
	(Thousand standard cords)					
Aspen	730	340	300	80	5	5
Balsam fir	50	25	25	*	-	-
Hemlock	95	50	35	10	-	-
Jack pine	140	40	60	35	5	*
Spruce	15	10	5	*	-	-
Tamarack	10	5	5	*	-	*
Total	1,040	470	430	125	10	5

MICHIGAN

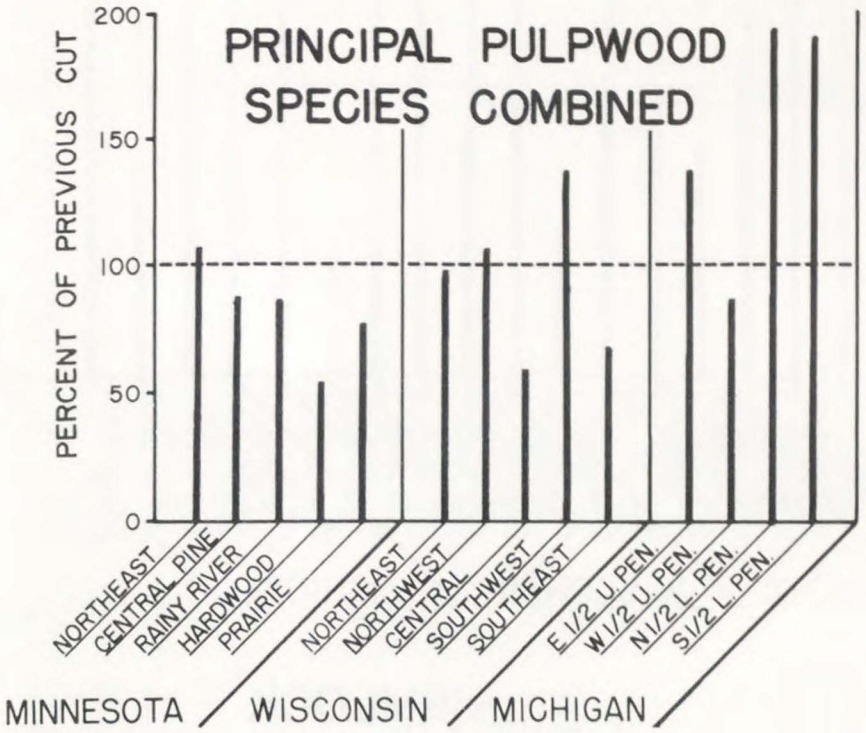
Species	State total	Forest survey district			
		E. 1/2 Upper Peninsula	W.1/2 Upper Peninsula	N. 1/2 Lower Peninsula	S.1/2 Lower Peninsula
	(Thousand standard cords)				
Aspen	775	140	195	400	40
Balsam fir	145	75	60	10	-
Hemlock	115	20	90	5	-
Jack pine	210	55	20	130	5
Spruce	115	55	50	10	-
Tamarack	15	5	10	*	-
Total	1,375	350	425	555	45

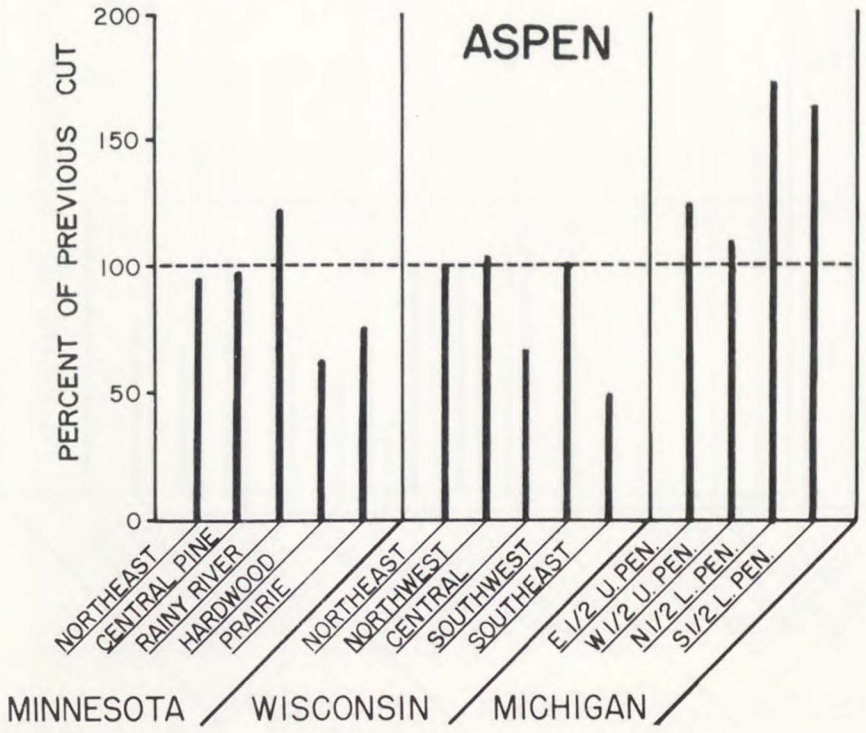
1/ Represents the sum of all timber products cut from sound wood in live merchantable timber plus logging residue.

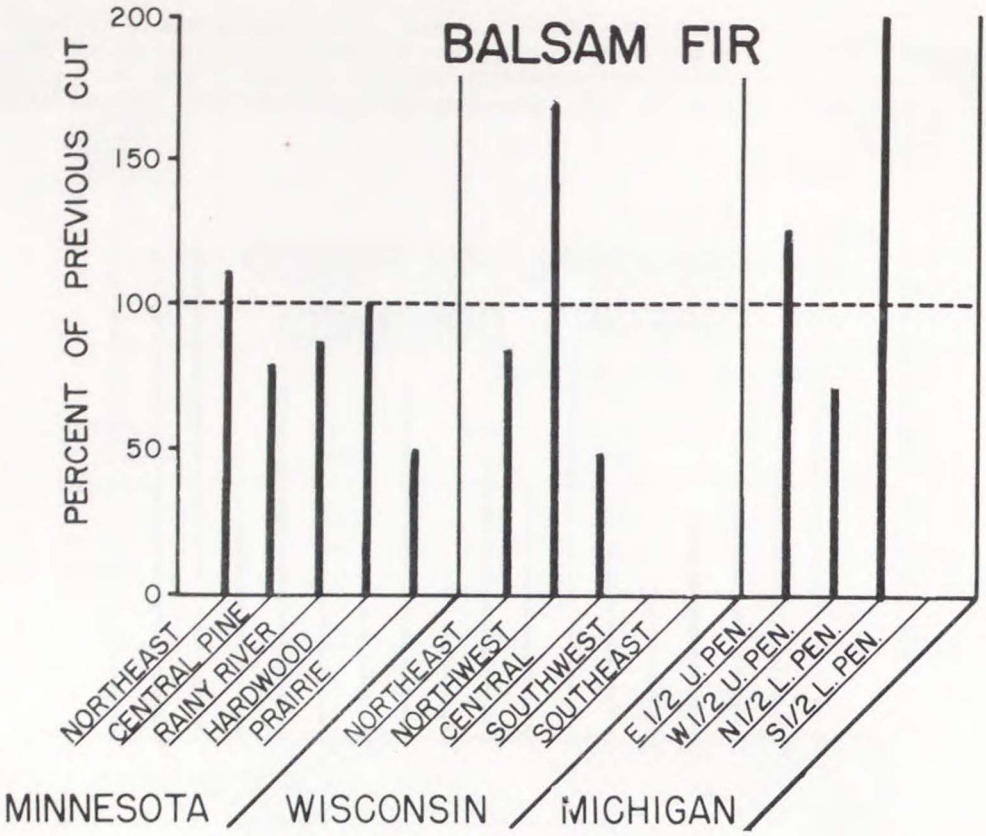
* Less than 2,500 cords.

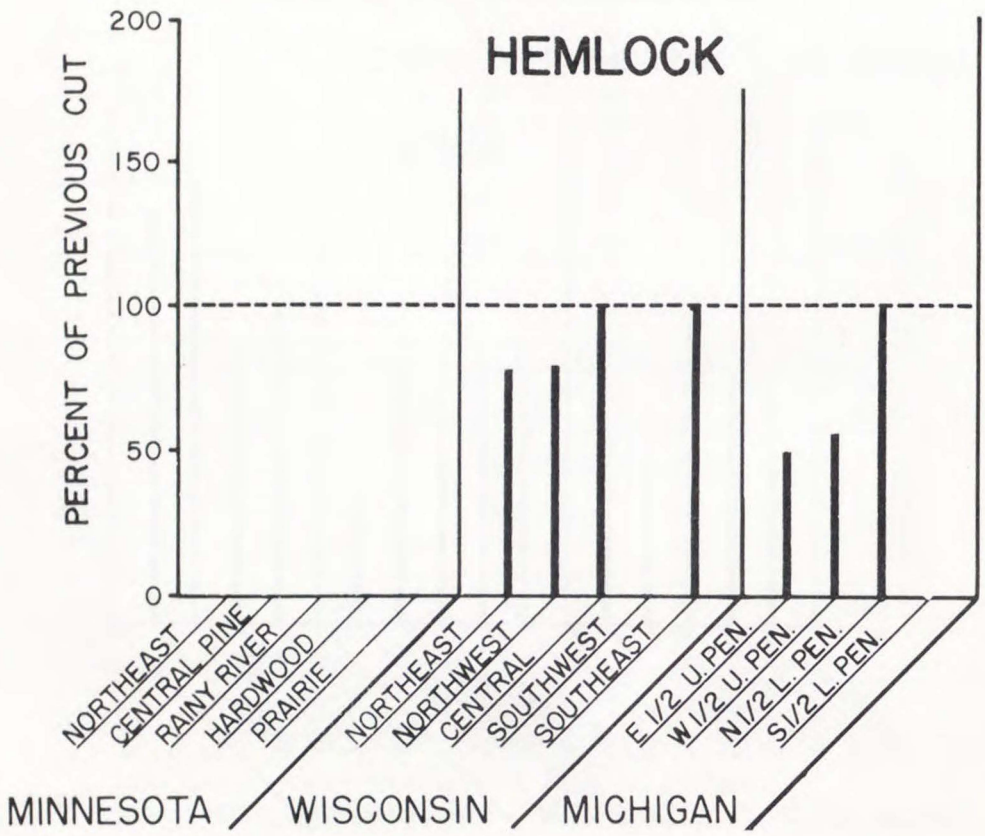


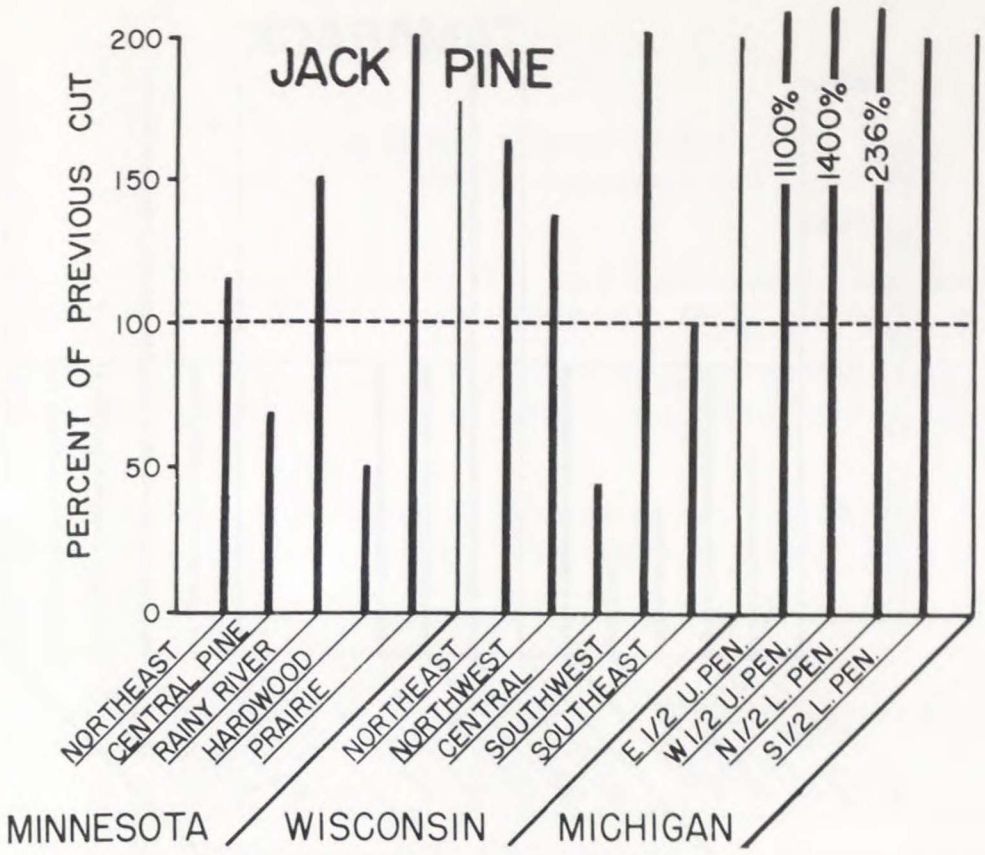
Charts show the 1960 timber cut as a percentage of the most recent previous estimate for principal pulpwood species by forest survey district. Latest available timber cut figures prior to 1960: Minnesota 1953, Michigan 1954, Wisconsin 1956.

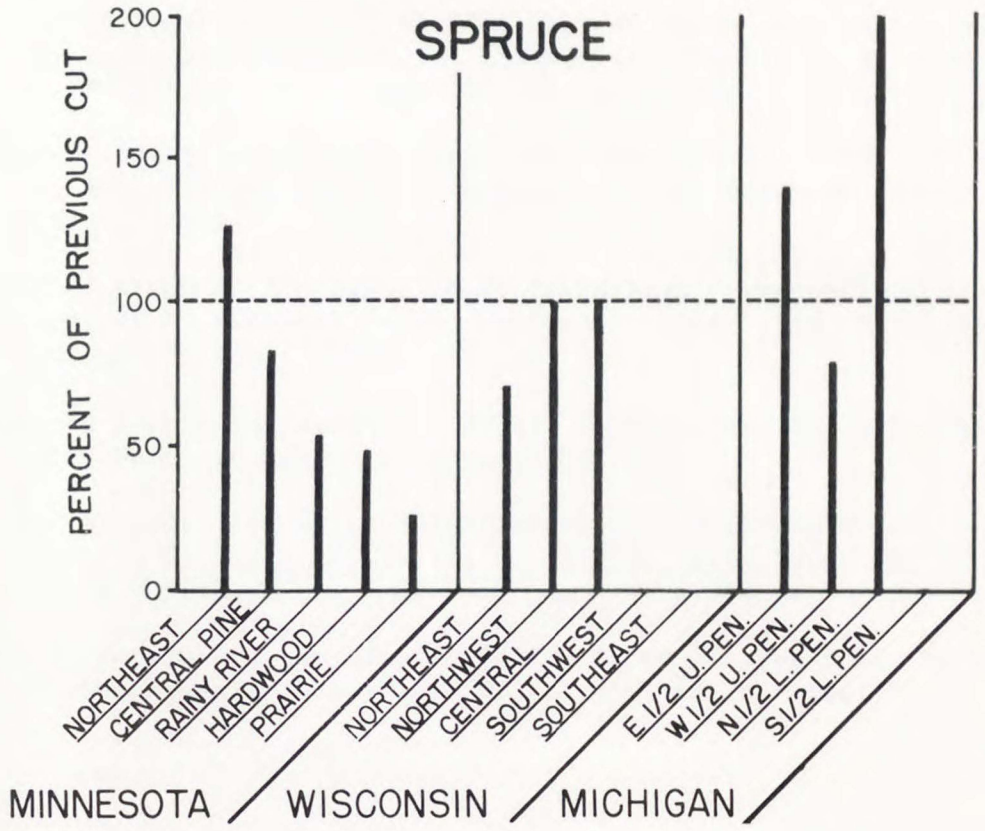


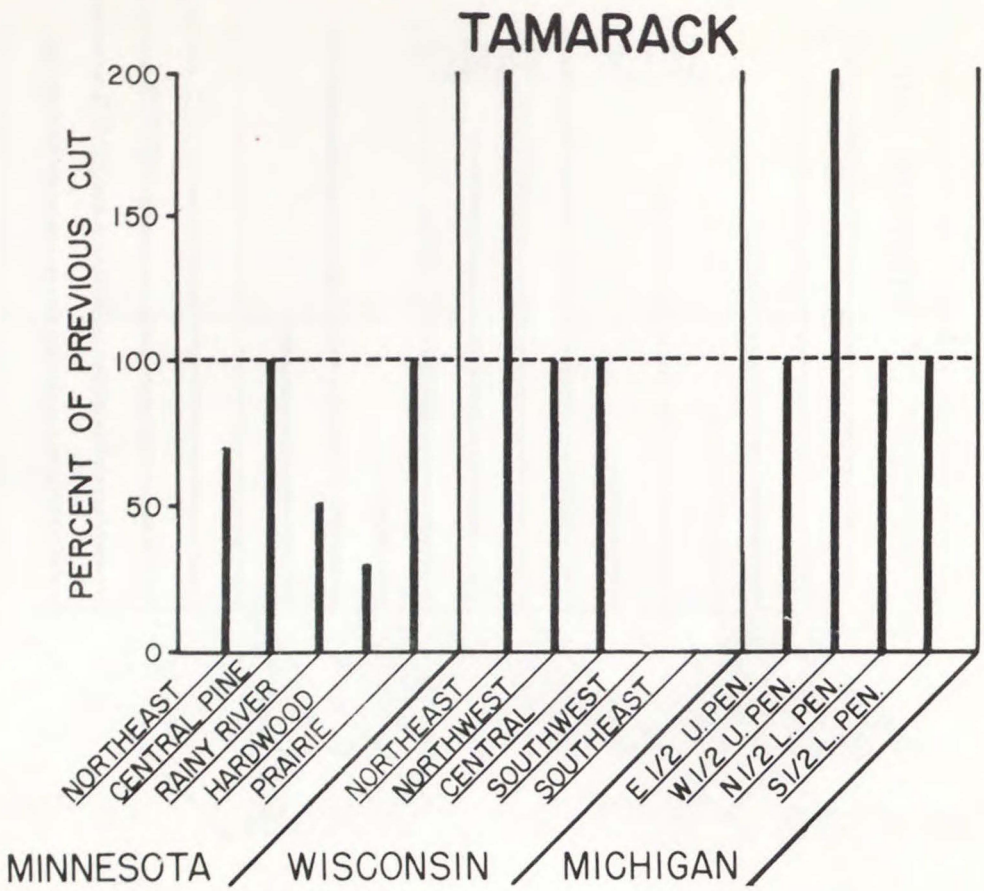



BALSAM FIR
PERCENT OF PREVIOUS CUT
200
150
100
50
0
NORTHEAST
CENTRAL PINE
RAINY RIVER
HARDWOOD
PRAIRIE
NORTHEAST
NORTHWEST
CENTRAL
SOUTHWEST
SOUTHEAST
E 1/2 U. PEN.
W 1/2 U. PEN.
N 1/2 L. PEN.
S 1/2 L. PEN.
MINNESOTA
WISCONSIN
MICHIGAN


HEMLOCK
PERCENT OF PREVIOUS CUT
200
150
100
50
0
NORTHEAST
CENTRAL PINE
RAINY RIVER
HARDWOOD
PRAIRIE
NORTHEAST
NORTHWEST
CENTRAL
SOUTHWEST
SOUTHEAST
E 1/2 U. PEN.
W 1/2 U. PEN.
N 1/2 L. PEN.
S 1/2 L. PEN.
MINNESOTA
WISCONSIN
MICHIGAN


JACK PINE
PERCENT OF PREVIOUS CUT
200
150
100
50
0
1100%
1400%
236%
NORTHEAST
CENTRAL PINE
RAINY RIVER
HARDWOOD
PRAIRIE
NORTHEAST
NORTHWEST
CENTRAL
SOUTHWEST
SOUTHEAST
E 1/2 U. PEN.
W 1/2 U. PEN.
N 1/2 L. PEN.
S 1/2 L. PEN.
MINNESOTA
WISCONSIN
MICHIGAN


SPRUCE
PERCENT OF PREVIOUS CUT
200
150
100
50
0
NORTHEAST
CENTRAL PINE
RAINY RIVER
HARDWOOD
PRAIRIE
NORTHEAST
NORTHWEST
CENTRAL
SOUTHWEST
SOUTHEAST
E 1/2 U. PEN.
W 1/2 U. PEN.
N 1/2 L. PEN.
S 1/2 L. PEN.
MINNESOTA
WISCONSIN
MICHIGAN


TAMARACK
PERCENT OF PREVIOUS CUT
200
150
100
50
0
NORTHEAST
CENTRAL PINE
RAINY RIVER
HARDWOOD
PRAIRIE
NORTHEAST
NORTHWEST
CENTRAL
SOUTHWEST
SOUTHEAST
E 1/2 U. PEN.
W 1/2 U. PEN.
N 1/2 L. PEN.
S 1/2 L. PEN.
MINNESOTA
WISCONSIN
MICHIGAN

SOME RECENT STATION PAPERS
Lake States Forest Experiment Station

Proceedings of the Lake States Forest Tree Improvement Conference, October 6 and 7, 1959. Sta. Paper 81, 60 pp., illus. 1960.

Michigan's Forest Resources, by Virgil E. Findell, Ray E. Pfeifer, Arthur G. Horn, and Carl H. Tubbs. Sta. Paper 82, 46 pp., illus. 1960.

European Pine Shoot Moth Damage as Related to Red Pine Growth, by H. J. Heikkenen and W. E. Miller. Sta. Paper 83, 12 pp., illus. 1960.

Streambank Stabilization in Michigan--A survey, by W. D. Striffler. Sta. Paper 84, 14 pp., illus. 1960.

Pulpwood Production in Lake States Counties, 1959, by Arthur G. Horn. Sta. Paper 85, 13 pp., illus. 1960.

Evaluating the Growth Potential of Aspen Lands in Northern Minnesota, by R. O. Strothmann. Sta. Paper 86, 20 pp., illus. 1960.

The Climatic Distribution of Blister Rust on White Pine in Wisconsin, by E. P. Van Arsdel, A. J. Riker, T. F. Kouba, V. E. Suomi, and R. A. Bryson. Sta. Paper 87, 34 pp., illus. 1961.

The Forest Insect and Disease Situation, Lake States, 1960, by Gerald W. Anderson and Donald C. Schmiege. Sta. Paper 88, 18 pp., illus. 1961.

Forest Recreation in the Upper Great Lakes Area: Proceedings of a Seminar on Research Needs, May 11-13, 1961. Sta. Paper 89, 104 pp., illus. 1961.

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